Naval Warfare System Certification Policy (NWSCP) Introduction
and
USS RONALD REAGAN
USS DWIGHT D. EISENHOWER
Implementation

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30 June 2005

Sponsored by **SPAWAR**
SPAWARSYSCOM
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Enable the Integrated Force

NWSCP Profile

➢ **Joint SYSCOM instruction providing Platform and Strike Force certification per direction by CFFC 032037Z MAY 04**

- **Supercedes G&PP SQI 99-05 D-30 certification process in-place since 1999**

- **Provides for platform certification by A-1 (A-5)* which is a Fleet TYCOM requirement for installation approval**

- **Coordinates certification requirements across the SYSCOMs and PEOs**

- **Integrates with SHIPMAIN, FORCEnet, SUBMOD, and C5IMP Baselining and System Acquisition efforts**

- **Provides uniform guidance to Fleet C5IMP**

- **Leverages off of existing processes while supporting new efforts**

*Note: Planned for incorporation under CFFCINST 4720.3B

Requirement Leading to NWSCP Development

➢ **Development of Joint SYSCOM certification policy in support of FRP**

- **MSG 032037Z MAY 04 COMFLTFORCOM C5IMP POLICY**
  - ❖ Augments CNO '98 NAVMSG for implementing C5I modernization component of FRP
  - ❖ Defines Joint SYSCOMS – NAVSEA, NAVAIR, NAVSUP, SPAWAR, MARCORSYSCOM, AND PEOs responsible for C5IMP covered systems

- **MSG states NAVSEA 06 will– Section 5.H(4)**
  - ❖ Maintain NDE-AMPS
  - ❖ Assess C5I modernization capability improvements,technical readiness, system safety, and interoperability and present this assessment during the annual baselining conferences.
  - ❖ Provide metrics for overall assessment of c5i modernization process.
  - ❖ Certify platforms to ensure interoperability within the platform including embedded training systems, and strike groups using the Distributed Engineering Plant (DEP) and Combat Systems Integration Testing (CSIT) programs.
  - ❖ Lead development of Joint SYSCOM system certification policy and guidance.
  - ❖ Notify the appropriate FLT CDR of any C5I modernization requiring Weapons Systems Explosive Safety Review Board (WSESRB) Certification.

Platform Certification Approach
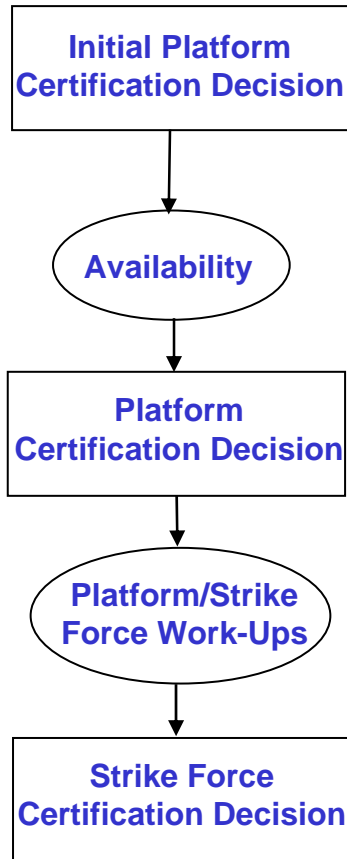
> **A Platform Certification Decision must be accomplished in two steps**
> - **Step 1 (Initial Platform Certification Decision):**
>   - ❖ Occurs after Combat System Certification and prior to the start of the maintenance period/CNO availability
>   - ❖ Evaluates maturity of Warfare System computer program to support system installation
>   - ❖ Basic Platform Interoperability Test demonstrates critical functionality and ensures readiness for advanced interoperability testing
>   - ❖ Provides certification to install subject warfare system upgrades
> - **Step 2 (Platform Certification Decision):**
>   - ❖ Occurs after completion of maintenance period/ warfare system installation and prior to emergency surge
>   - ❖ Provides Final Certification that the Warfare System and other platform level certifications are complete
>   - ❖ Advanced Platform Interoperability Test measures quantitative impacts on Force Interoperability
>   - ❖ Certifies the platform Warfare Systems are ready for deployment

> **A Strike Force Certification Decision occurs prior to deployment**
> - **Platform certifications are complete**
> - **Appropriate Platform and Strike Force Interoperability Tests are complete**
> - **Appropriate Strike Force Interoperability Tests are complete and provide Certified Strike Force I/O Characterization**
> - **Administrative, training and other requirements met**
> - **Certified Strike Force I/O Characterization may be updated, as necessary, when additional test results become available within FRP window**

Flow Diagram

Initial Platform Certification Decision
↓
Availability
↓
Platform Certification Decision
↓
Platform/Strike Force Work-Ups
↓
Strike Force Certification Decision

Platform and Strike Force Interoperability Certification Approach

Requirements Review
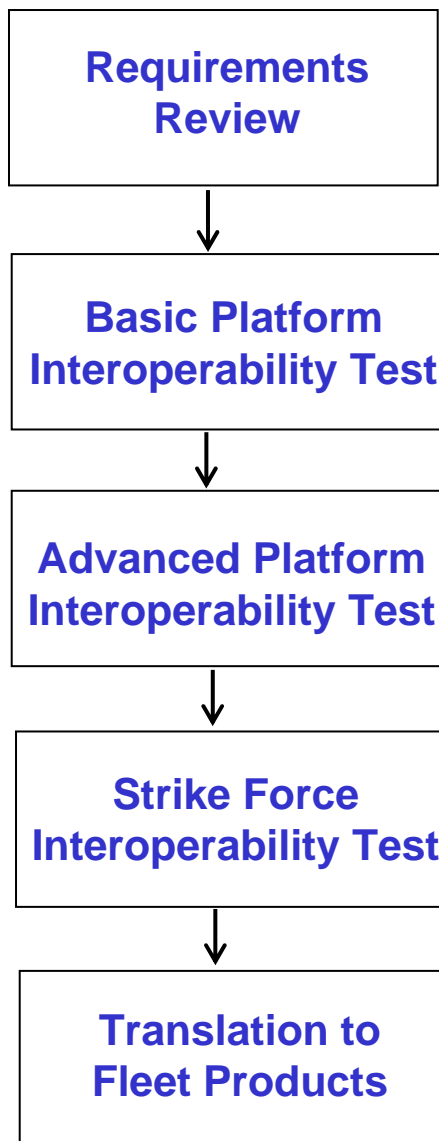
Translate Top Level Requirements to Strike Force Interoperability Certification Thresholds
- Interpret Joint and Navy requirements (CRD's, NMETLs)
- Leverage IER's, SIAP and other objective measures and thresholds, as appropriate
- Reference missions and architectures
- Establish performance baseline (reference Strike Force/metrics)
- Formal reset of baseline defines long-term progress

Basic Platform Interoperability Test

Basic Platform Interoperability Test (BPIT)
- Supports IPCD
- Conducted during Warfare System Integration and Interoperability Test (WSI2T)
- Expansion of Multi-Platform Interoperability Test (MIT) currently conducted during CSIT. BPIT adds actual combat systems
- Representative of typical surge interaction (AEGIS, Non-AEGIS, CEC/Non-CEC)
  - Basic Platform Interoperability Test verifies key functionality (ID Diff, Force Orders, track management, etc.) and ensures readiness for advanced testing
  - Basic Platform Interoperability Test maintains functional focus, vice Force-level metrics analysis

Advanced Platform Interoperability Test

Advanced Platform Interoperability Test (APIT)
- Supports PCD
- Comparative approach measures test platform impacts on baseline interoperability performance
- Reference Strike Group performance defined using SIAP Attributes initially
- Metrics deltas cue root cause analysis
- Future iterations may introduce additional metrics or reference models
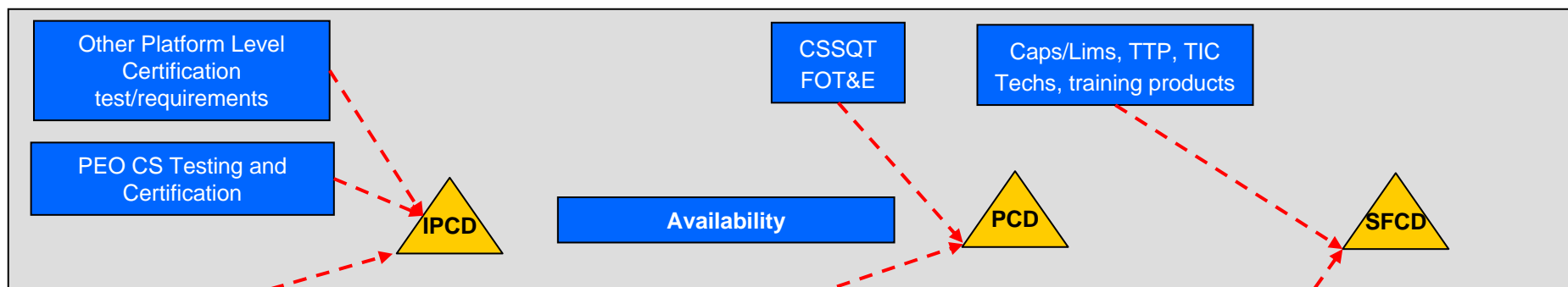- May test two moderate upgrades concurrently to maximize test efficiency

Strike Force Interoperability Test

Strike Force Interoperability Test (SFIT)
- Supports SFCD
- Assesses specific platform to platform I/O interaction
- Characterizes surge platforms for CFFC to consider when assembling deploying SFs
- Produces Interoperability rating (good, with restrictions, not recommended, unknown) with all other surgeable platforms
- Integrated with Strike Force Training and BG Caps and Lims efforts

Translation to Fleet Products

Define platform limitations and impacts in technical and operational terms
- Assigns impacts to PEO/PM systems engineering process for resolution
- Operational impacts drive Fleet/sponsor priority/funding decisions
- Process integrates Fleet Training/BF Caps and Lims/etc to flow issues toward TTP and other mitigating procedures
- Provides Fleet with information necessary to optimize SF compositions and optimize performance within assigned architectures
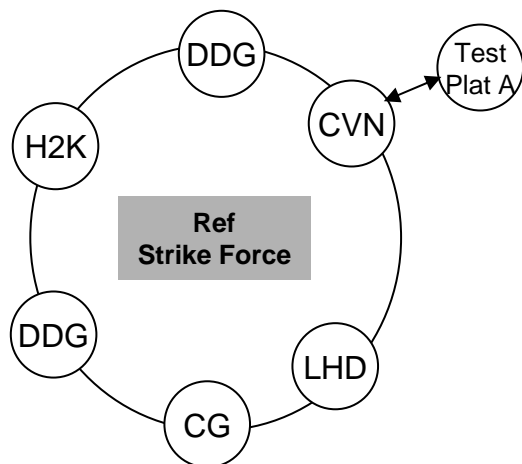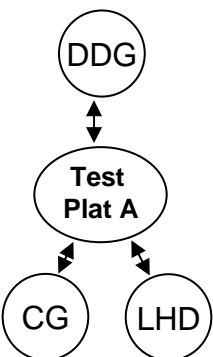
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Other Platform Level Certification test/requirements

PEO CS Testing and Certification

IPCD

Availability

CSSQT FOT&E

PCD

Caps/Lims, TTP, TIC Techs, training products

SFCD

Basic Platform I/O Test

Advanced Platform Interoperability Test

Strike Force Interoperability Test

DDG

DDG — CVN — Test Plat A

H2K

Ref Strike Force

DDG

CG

LHD

DDG

H2K — CVN

DDG

CG

LHD

Platforms/Baselines Available within FRP

C D E F G

DDG

Test Plat A

CG LHD

•Functional Operability Test
•Point to Point
•Representative Combat Systems

verifies key functionality
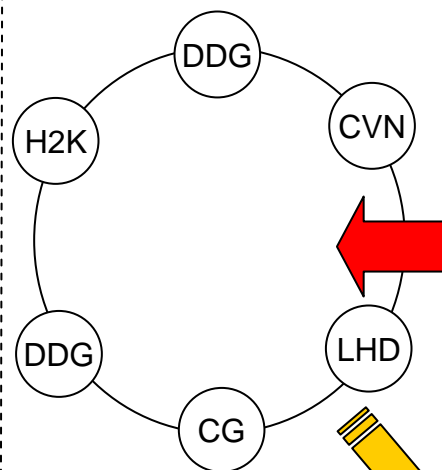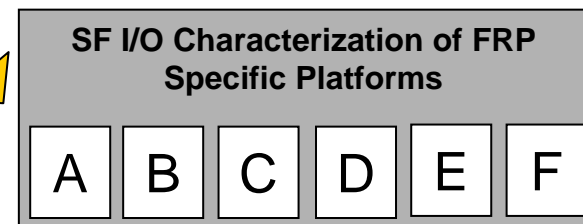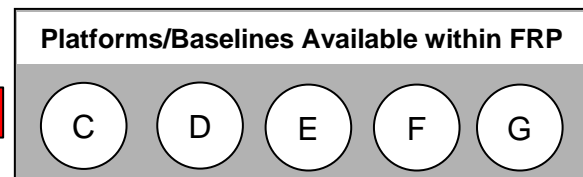
Results of Warfare System Upgrade impacts on Ref SG Metrics
-- Better?
-- Worse?
-- No significant change?

impacts on baseline interoperability performance
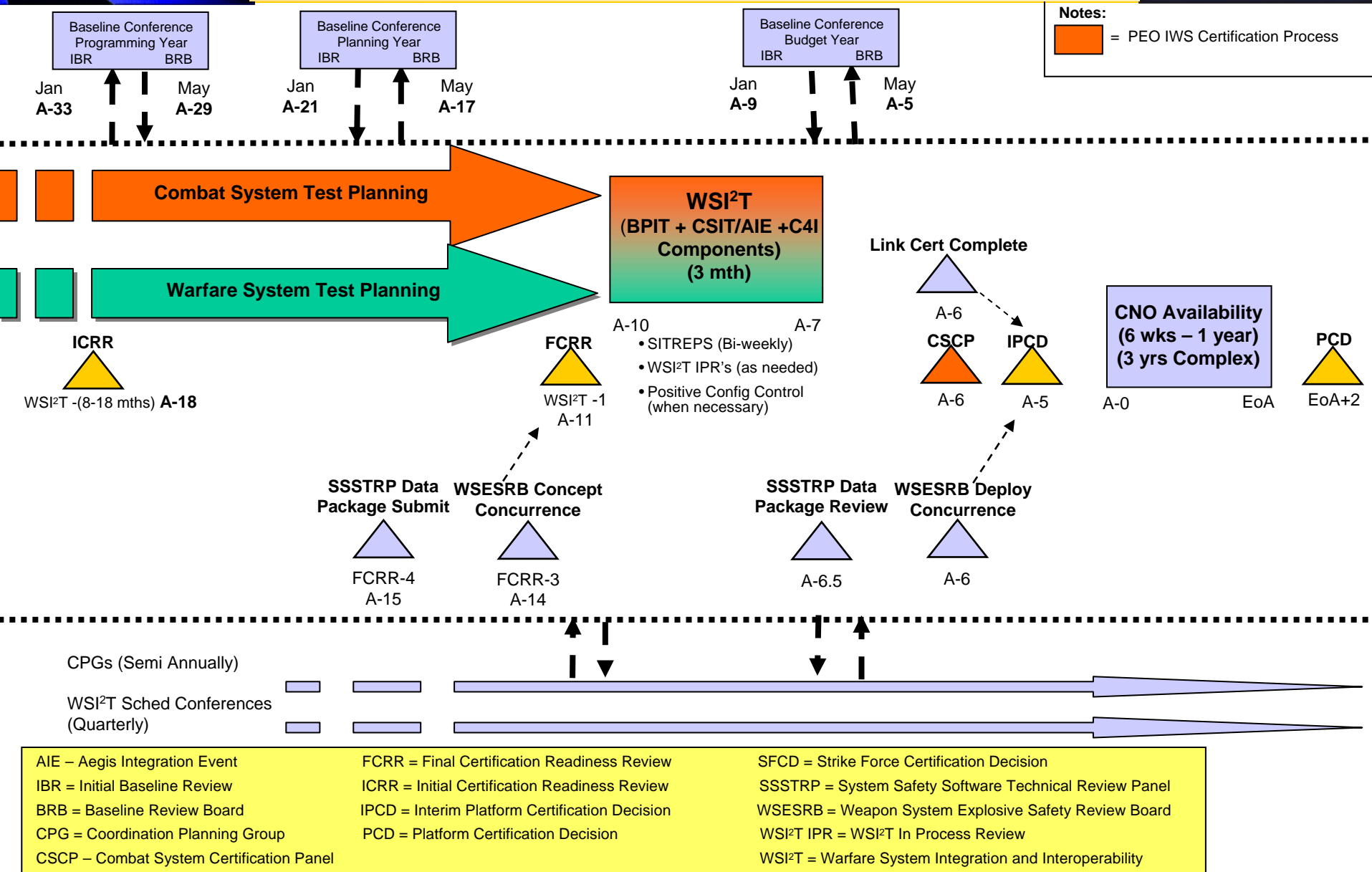
platform to platform I/O interaction

SF I/O Characterization of FRP Specific Platforms

A B C D E F

Good-With Restrictions-Not Recommended-Unknown

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Notes:

■ = PEO IWS Certification Process

Baseline Conference Programming Year	
IBR	BRB
Jan **A-33**	May **A-29**

Baseline Conference Planning Year	
IBR	BRB
Jan **A-21**	May **A-17**

Baseline Conference Budget Year	
IBR	BRB
Jan **A-9**	May **A-5**

Combat System Test Planning

Warfare System Test Planning

WSI²T
(**BPIT + CSIT/AIE +C4I Components**)
(3 mth)

A-10   A-7
- SITREPS (Bi-weekly)
- WSI²T IPR's (as needed)
- Positive Config Control (when necessary)

Link Cert Complete
A-6

CSCP
A-6

IPCD
A-5

CNO Availability
(6 wks – 1 year)
(3 yrs Complex)
A-0   EoA

PCD
EoA+2

ICRR
WSI²T -(8-18 mths) **A-18**

FCRR
WSI²T -1
A-11

SSSTRP Data Package Submit
FCRR-4
A-15

WSESRB Concept Concurrence
FCRR-3
A-14

SSSTRP Data Package Review
A-6.5

WSESRB Deploy Concurrence
A-6

CPGs (Semi Annually)

WSI²T Sched Conferences (Quarterly)

AIE – Aegis Integration Event	FCRR = Final Certification Readiness Review	SFCD = Strike Force Certification Decision
IBR = Initial Baseline Review	ICRR = Initial Certification Readiness Review	SSSTRP = System Safety Software Technical Review Panel
BRB = Baseline Review Board	IPCD = Interim Platform Certification Decision	WSESRB = Weapon System Explosive Safety Review Board
CPG = Coordination Planning Group	PCD = Platform Certification Decision	WSI²T IPR = WSI²T In Process Review
CSCP – Combat System Certification Panel		WSI²T = Warfare System Integration and Interoperability

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SEA 62

USS RONALD REAGAN (CVN 76) Test Event Pedigree

2005   **2006**

CSIT IV MIT	
18 APR – 11 JUN BPIT /CSIT V MIT	
23 MAY – 03 JUN CSSQT	
20 – 24 JUN Single FOT&E (1 WK)	
25 – 29 JUL IA 05-02 APIT/SFIT (1 WK)	
OCT Multi Ship FOT&E (1 WK)	

CSSQT ANALYSIS

AUG – SEP APIT ANALYSIS

OCT SFIT ANALYSIS

IA RPT

MS FOT&E Analysis

FCRR — 07 APR

CSCP — 22 JUN

IPCD — 20 JUL

EM SURGE — AUG

PCD — 30 SEP

SURGE CAP — NOV

SFCD — JAN

DEPLOY READY — FEB
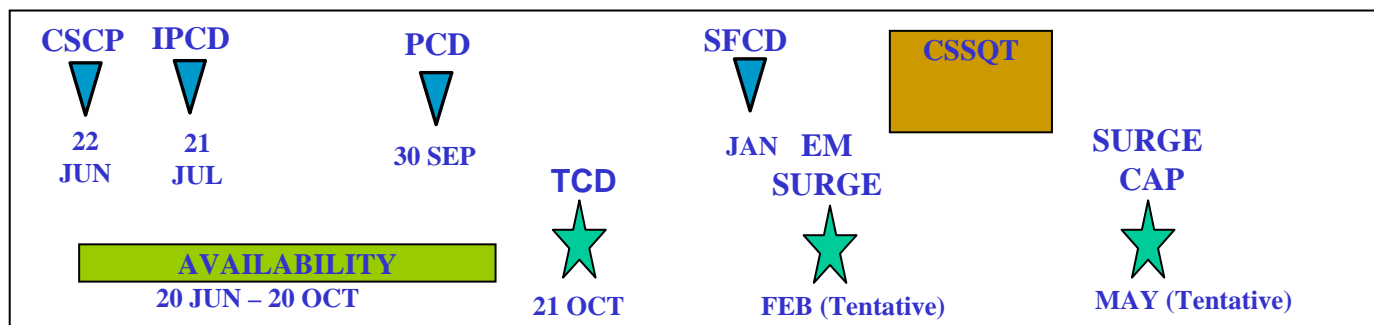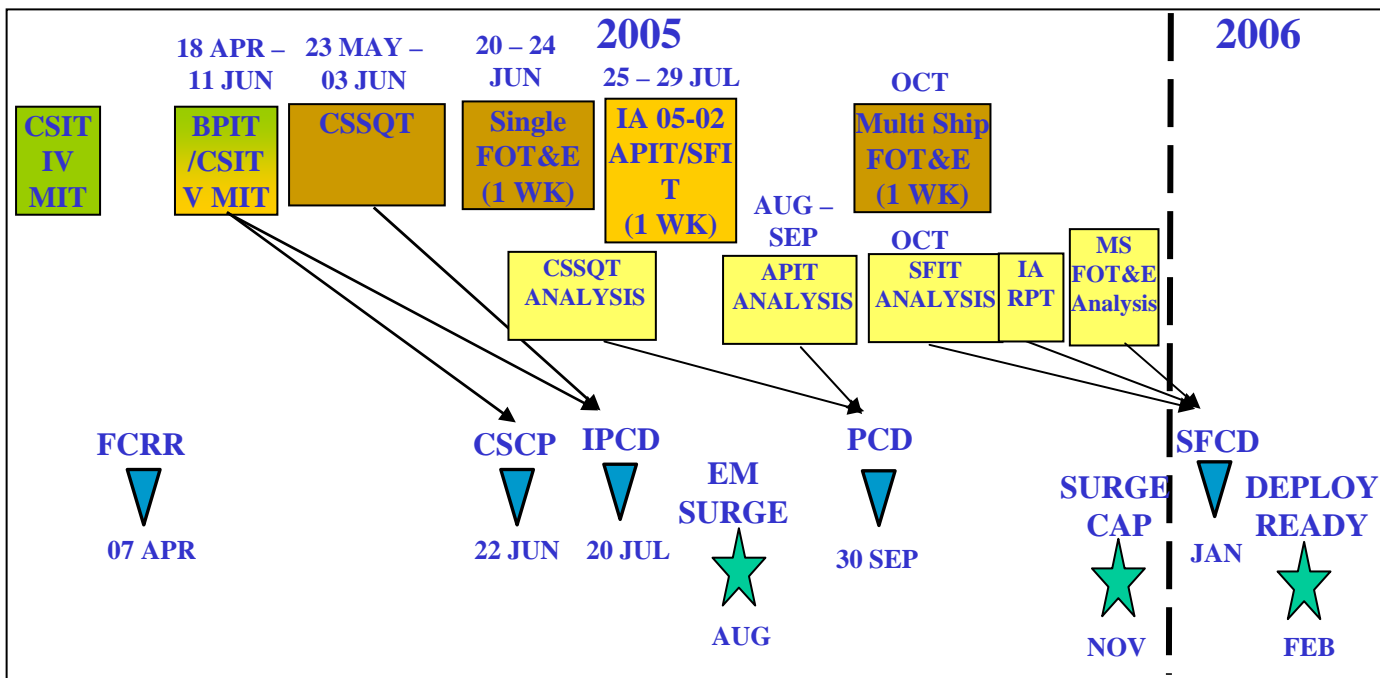
USS DWIGHT D. EISENHOWER Test Event Pedigree

CSCP — 22 JUN

IPCD — 21 JUL

PCD — 30 SEP

AVAILABILITY — 20 JUN – 20 OCT

TCD — 21 OCT

SFCD — JAN

EM SURGE — FEB (Tentative)

CSSQT

SURGE CAP — MAY (Tentative)

➢ **Flag level decision meetings chaired by NAVSEA 06**

➢ **Panel of representatives comprised of applicable SYSCOM Reps, TWHs, and Fleet Reps**

➢ **All are supported by Ship Class SPMs, SYSCOMS, PEOs, DRPMs, TWHs, Fleet Reps**

- **IPCD**
  - ❖ IPCD provides the initial certification to support authorization to install the warfare system(s) in the subject platform
  - ❖ Meets not less than 5 months prior to CNO avail start
  - ❖ NAVSEA 06 will assesses platform warfare status based on information provided by the WSI^{2}T Test Director, SPM, PEO IWS, other PEOs, DRPMs, and TWHs and official correspondence from the TWHs associated with other certification efforts

- **PCD**
  - ❖ PCD will provide a final platform level certification upon completion of the maintenance period and associated shipboard testing to determine readiness for deployment. The intent is to ensure no significant regression of platform capabilities after warfare system(s) installation, from that measured and certified at the IPCD.
  - ❖ The PCD panel will meet after completion of planned shipboard testing and no later than one-month prior to the projected or scheduled Emergency Surge date.

Initial Platform Certification Decision (IPCD) Criteria

- Warfare system computer programs shall have no unresolved High Priority or Safety TRs at time of resolution. All open safety and high priority TRs presented to the certification panel require resolution via Flag level review and approval by NAVSEA 06, PEO IWS and the Fleet representative.

- Safety and High Priority TRs must be resolved via software correction or through mitigation via Tactics, Techniques and Procedures (TTP), restrictions or documented as program limitations.

- TTPs, restrictions and computer program limitations must be tested, validated, documented, delivered and trained to ships crew.

- Warfare system computer programs have successfully passed a minimum 25 hour Stress and Endurance Test (conducted at the WSI2T facility) with TTPs and restrictions executed as applicable.

- The individual and aggregate of warfare system TTPs, restrictions and limitations (associated with mitigating High Priority TRs) and workarounds (associated with Priority 3&4 TRs) must not be so complex or labor-intensive to prevent operational effectiveness or the inability to satisfy platform or strike force mission requirements. NAVSEA 03 will coordinate with SEA WARRIOR participants (Naval Personnel Development Command, Human Performance Center, and Naval Personnel Command) to review each TTP, restriction, limitation and workaround and determine acceptability, and determine the aggregate impact within each functional area or mission area. This assessment will also consider Fleet inputs and results of operational assessment / testing at the WSI2T facility. Additionally, warfare system element Principals For Safety (PFS) will evaluate the aggregate impact to determine if there is any safety impact.

Initial Platform Certification Decision (IPCD) Criteria Continued

➢ **Improved warfare system capabilities and operational performance over prior baselines are demonstrated.**

➢ **Basic platform level testing has shown no interoperability problems, likely to cause significant degradation at the force level.**

➢ **Other certification/deployment criteria are satisfied, such as: Warfare system/element (system) level Certifications, NCTSI Interoperability Certification, WSESRB Concurrence, Security (DITSCAP) Accreditation, Navigation Certification, HSI Certification, Ship EMC Certification, System EMC Certification, Topside Certification (EMI), Radiation Hazard (RADHAZ) Certification, Electromagnetic Spectrum Compliance, Training Certification, and ILS Certification**

Strike Force Certification Decision

- ➢ **Platform Certifications are complete**
  - **Evaluate platforms certification posture on the Strike Force**
  - **Assess C5I changes implemented since certification**

- ➢ **Appropriate Platform and Strike Force Interoperability Tests are complete**
  - **Distributed Engineering Plant**
  - **CSSQT**
  - **DT/OT Events**

- ➢ **Certified Strike Force I/O Characterization delivered**
  - **Performance characterizations may be updated as additional test data becomes available**

- ➢ **Fleet Training, Platform and SG Caps and Lims, TTP, Tic Tech Aids, and other related products are developed and ready for delivery**

Platform Certification Criteria Completion Checklist

Platform Certification Criteria Completion				
Criteria	CVN 76	DDG 85	DDG 73	CG 57
(1) Warfare system computer programs have no unresolved High Priority or Safety TRs.	🟨			
(2) Safety and High Priority TRs must be resolved via TTP, restrictions, or documented as program limitations	🟨			
(3) TTPs, restrictions and computer program must be tested, validated, documented, delivered and trained to ships crew	🟨	**Platforms Combat System Certified under**		
(4) Warfare system computer programs have successfully passed a minimum 25 hr Stress and Endurance Test (conducted on the platform) with TTPs and restrictions executed as applicable	🟨	**SQI 99-05 Process**		
(5) The individual and aggregate of warfare system TTPs, restrictions and limitations (associated with mitigating High Priority TRs) and workarounds (associated with Priority 3&4 TRs) must not be so complex or labor intensive to prevent operational effect	🟨			
(6) No significant degradation of warfare system capabilities and operational performance over IPCD results	🟩			
(7) Further testing has shown no interoperability problems, likely to cause significant degradation at the force level	🟩			
8) Other certification/deployment criteria are	⬜			
(a) Combat System Certification	🟨			
(b) NCTSI Interoperability Certification	🟩			
(c) WSESRB Concurrence	🟩			
(d) Security (DITSCAP) Accreditation	⬜			
(e) Navigation Certification	🟩			
(f) HSI Certification	⬜			
(g) Ship EMC Certification	🟩			
(h) System EMC Certification	🟩			
(i) Topside Certification (EMI)	⬜			
(j) RADHAZ Certification	🟩			
(k) Electromagnetic Spectrum Compliance	⬜			
(l) Flight Deck Certification (where applicable)	🟩			
(m) Training Certification	🟩			
(n) ILS Certification	🟩			

🟩 = On Target for Completion by Certification Date   🟥 = Will Not Complete by Certification Date

🟨 = Risk of Completion by Certification Date   ⬜ = Not Accessed

Strike Force Certification
Appropriate Platform and Strike Force Interoperability Tests are Complete

➢ **Collaborative System Tests (CST)**
- ❖ **CST 1:   9/8-11/03**
- ❖ **CST 2:   2/23-25/04**
- ❖ **CST 3:   9/13-17/04**

➢ **USS RONALD REAGAN UNITAS SIFOREX event during Phase III of the Sail Around**

Test Events Supporting Strike Force Certification and Deliverables						
WSI^{2}T				IA 05-02		
CSIT V	BPIT	CSSQT	Single Ship FOT&E	APIT	SFIT	Multi-Ship FOT&E
11 APR - 18 JUN	24-26 MAY	23 MAY - 03 JUN	20-24 JUN	25-29 JUL	25-29 JUL	OCT
Any unresolved test issues will be reviewed for Strike Force Certification Impact	Any unresolved test issues will be reviewed for Strike Force Certification Impact	Possible Platform-to-Platform Interoperability testing added to this At-Sea event * Corona I/O Assessment/Report * ICSTD Review and Report	Possible Platform-to-Platform Interoperability testing added to this At-Sea event * Corona I/O Assessment/Report * ICSTD Review and Report	* Corona I/O Assessment/Report * ICSTD Review and Report	* Corona I/O Assessment/Report * ICSTD Review and Report * Interoperability Assessment Brief-Out to identify issues from the IA 05-02 event	* COIs * MOEs * Deficiencies * COTF Recommendations * PARM Reviews * PARM Report Recommendations
Technical Review for Interoperability Impacts						

Incorporate into CAPS/LIMS

Metric Name	Requirement(s) Source
Completeness	TAMD CRD & SIAP KPP
Clarity	TAMD CRD & SIAP KPP
Continuity Characteristic Track Lifetime Longest Track Segment	TAMD CRD & SIAP KPP
Accuracy Position Velocity Course	TAMD CRD & SIAP KPP
CID FoS ID Probability Friendly Enemy Neutral	CID CRD
ID Completeness Friendly Enemy Neutral	SIAP KPP
CIS Fos Probability of Correct ID	CID CRD
ID Correctness	SIAP KPP

Platforms/Baselines Available within FRP
C D E F G

SF I/O Characterization of FRP Specific Platforms
A B C D E F
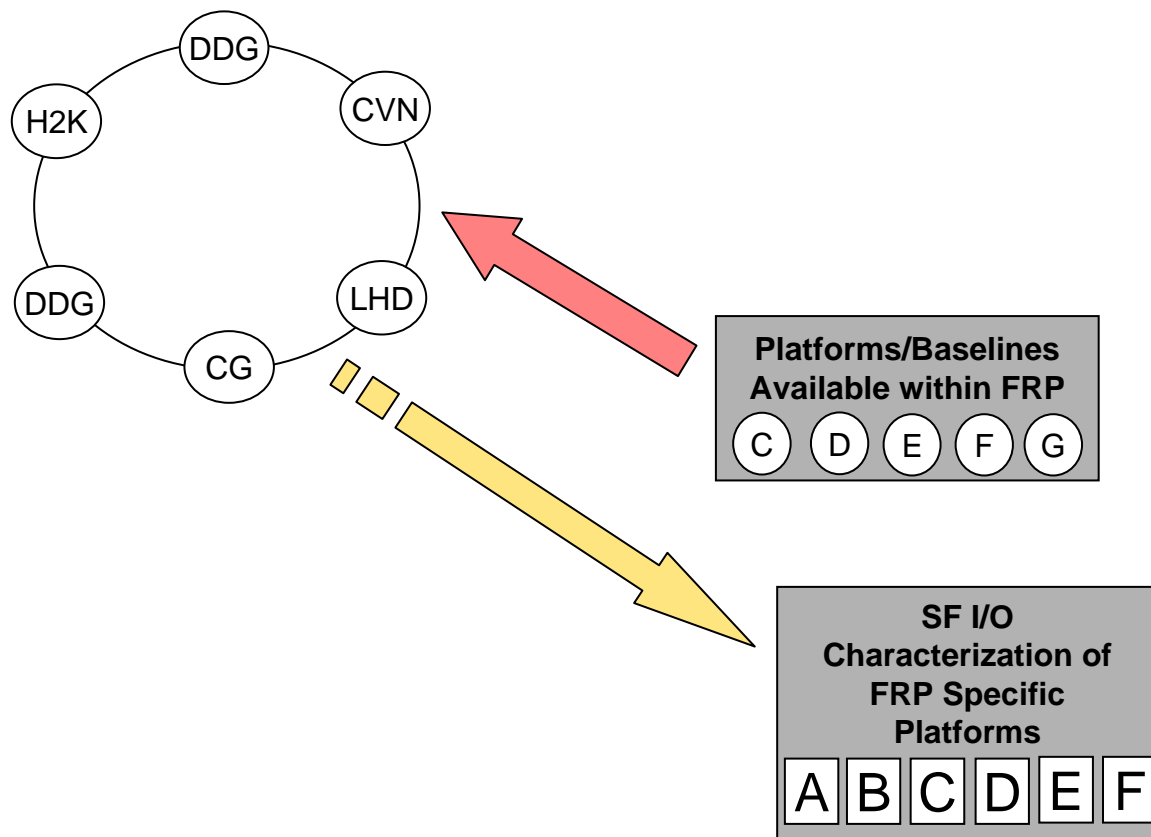
SIAP Metrics are used to Support Interoperability Analysis

Strike Force Certification
**Required Testing, Platform and SG Caps and Lims, TTP,
TIC Techs, and Training Prod. Developed and Delivered**

Review Deliverables

➤ **Test Deliverables**

- **CSSQT Report**
- **Single Ship FOT&E Report**
- **APIT Report**
- **SFIT Report**
- **Multi-Ship FOT&E Report**

➤ **Training and Other Deliverables**

- **Platform Caps and Lims**
- **Strike Group Caps and Lims**
- **Warfare Area Matrix (WAM)**
- **Force Interoperability Assessment (IA) Brief**
- **Trouble Report List**
- **Staff Training Briefs**
- **Operator Training Briefs**

The Navy Distributed Engineering Plant (DEP)
USS Kearsarge, LHD-3
Expeditionary Strike Group
Interoperability Brief

Staff Brief (Powerpoint)
Operator Brief (Powerpoint)
CAPS and LIMS (HTML)
TIC TECHAID (HTML)
Intro to DEP (Windows Media)
Trouble Reports (Acrobat)
Browse CD Contents

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NWSCP Development Phased Approach

- ➢ **Phase I: Promulgate NWSCP to define FRP compliant platform and strike force certification policy with emphasis on Navy surface platforms**
  - • **Air and subsurface platforms addressed as part of SF Interoperability Certification**
  - • **Revisit certification criteria**
  - • **Clarify roles within the certification construct**

  > *Phase I – Awaiting SYSCOM Approval*

- ➢ **Phase II: Update NWSCP to focus on defining platform and strike force certification policy across the SYSCOMs**
  - • **Increase Joint SYSCOM participation in NWSCP development**
  - • **Integrate unique and complementary warfare system certification policy and processes for air and subsurface platforms**

  > *Phase II - Complete February 2006*

- ➢ **Phase III: Update NWSCP Phase II to align with the acquisition process**
  - • **Alignment of certification policy and processes with acquisition process (DoD/SECNAV 5000 Series)**
  - • **COMOPTEVFOR involvement**

  > *Phase III - Complete March 2007*

Force Analysis and Assessment

Summary

- NWSCP development continuing with participation across the SYSCOMS and PEOs
- July certification events for CVN 76 and CVN 69 are aligned with new certification processes
- Phase II efforts will exercise the cross-SYSCOM approach